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MEDICAL NEWS LETTER

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MEDICAL NEWS LETTER

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Brain Physiology and Modern Medicine

There can be no doubt that the roots of many—if not all—of the breakthroughs in modern medicine are firmly planted in advances in various fields of basic biologic research. Perhaps no field of basic research has been more active during the past 20 years than that which deals with function and structure of the nervous system. As a result, enormous illumination has been cast on modern understanding of human behavior and its disorders. But more than that, these neurophysiologic investigations have emphasized the pervasive role which the nervous system plays in the normal and distorted functions of most organ systems in the body.

Functional Brain Mechanisms

The Neuron. Previous concepts of neuronal function tended to oversimplify both structure and excitability of the neuron. A principal inaccuracy proposed that the "all-or-none" law governed all neuronal conductivity. Now, with refined methods of studying electric potentials within single cells, it is clearly evident that "all-or-none" action is an exceptional, and by no means predominant, form of nervous activity.

The far-reaching consequences of this new concept of cell function can be emphasized by the extensive change required in understanding the meaning of the electroencephalographic tracing. Now, it must be assumed that fluctuations in the record represent shifts in dendritic, nonpropagated potentials—excitability rather than discharge—and not composites of conducted spikes of all neurons in the region of the recording electrode.

The Brain Stem. Probably never in the history of brain study has there been a mine as rich as the brain stem for investigators of the past decade. Now, in addition to previously demonstrated functions, the central brain stem is known to contain the principal integrative mechanisms of the brain and is known to express critical influence in a number of modalities of function.

"Extrapyramidal" motor control—The first function to be assigned to this region recognized that it has the remarkable capacity to modify motor movements when stimulated. Subsequent investigation defined in detail the extent of this movement-controlling system and revealed it to be that previously known only as "the extrapyramidal system." Present concepts hold that maintenance of tone and full range of normal voluntary movement are accomplished by means of motor mechanisms involving these brain-stem centers. These influences are exerted on spinal reflex activity, both by direct downstream conduction from the reticular system and by cephalically directed action on the cortically originating pyramidal tract. For this reason, it is impossible to distinguish functionally between the "pyramidal" and "extrapyramidal" systems.

The arousal mechanism—Soon after the observations were made which elucidated the extrapyramidal system, it was found that stimulation of this

same central core resulted in arousal of a sleeping animal. Countless observations have defined the characteristics of this collection of cells—the reticular activating system (RAS). By virtue of its ability to exert a tonic excitatory influence on the cortex, RAS contains that mechanism which mediates the state of alertness called consciousness. Anything which injures or interferes with these mechanisms abolishes consciousness—drugs, oxygen deficiency, lack of sugar, or any one of hundreds of diseases which interfere with the normal metabolism of RAS neurons.

Control of sensation—In addition to the caudally directed influence of the reticular system on movement and its cephalically oriented powers to control consciousness, another role has been uncovered more recently in the assignment of a sensory-filtering function to the reticular system. Observations make it clear that the reticular system possesses the remarkable capacity to monitor all information which the brain receives, accepting only a limited amount of sensory input at any one time. Were it not thus, utter chaos would reign. No doubt, many mental aberrations which characterize psychotic disorders are related to distorted function of mechanisms traversing this reticular system.

Control of endocrine glands—Still another discovery during the past decade has assigned to portions of the brain stem a controlling influence over the endocrine system. This control is expressed through action of the hypothalamus on the anterior pituitary body; it is now evident that pituitary action on all target organs is subject to central influence. Pituitary-adrenocortical mechanisms are particularly heavily implicated in central nervous system function, and the stress reaction—whether of physical or psychologic origin—can be blocked easily in animals by making a lesion in the hypothalamus or by defunctionalizing this brain region through administration of drugs.

Emotional behavior—Closely linked with neural mechanisms of stress are those known now to be implicated in emotion, for related, if not identical, portions of the brain stem are involved in each of these behavioral and physiologic states. Impulses to this center from the forebrain are concerned with emotionally determined functions pertaining to preservation of self or to preservation of the species. Impulses from below come from the reticular system. Distortion of the normal stimulation results in emotional instability, prolonged stress, and actual visceral disease.

Medical Application

Epilepsy. Modern concepts of neuronal electrophysiology have contributed much to knowledge concerning the nature of epilepsy and to revision of many misconceptions concerning this disorder. It is probable that the basic disturbance resides in functionally abnormal dendrites. There is no doubt that cell populations which display trains of waves on the electroencephalogram are functioning abnormally, although they may not actually be "firing" in the old sense as applied to epilepsy. The search for a therapeutic tool

designed to suppress epileptiform activity is greatly aided by knowledge that dendritic function is at fault. In appropriately prepared animals, all manner of corrective medications or agents can be tested for their effectiveness in inhibiting such phenomena.

Psychosomatic Disease or Disorder. For a long time, a relationship has been known to exist between periods of unusual or prolonged stress and development of certain visceral disorders. Only recently have neurophysiologic techniques been added in any abundance to other methods, including those employing different forms of clinical assessment, in seeking answers to the problem. Observation and experimentation are confirming and defining the relationship of stress to such conditions as peptic ulcer disease, ileocolitis, neurodermatitis, hypertension, atherosclerosis, and coronary insufficiency.

Mental and Emotional Disturbances. Only brief mention is made of contributions of the neurophysiologic laboratory to the overwhelming problem created by the high incidence of mental disturbances in the world. Distortion of function of various regions of the brain are implicated in patients with emotional disturbances. Opportunity to explore the depths of the human brain in the course of therapeutic surgery is arising more and more commonly, and localized electroencephalographic abnormality is being found in various areas in patients with mental disease.

Drug Effects. Neuropharmacology is a relatively new science, but one which serves to emphasize the reflection that all drugs which soothe, quiet, induce sleep, excite, stimulate, immobilize, tranquilize, and calm do so by virtue of their action on the nervous system. Advancing knowledge of brain function has tremendously implemented understanding of the manner in which this immense class of drugs induces desired effects. Techniques of neurophysiology have afforded a valuable tool in study of the effects of drug action and can be counted on to disclose many valuable leads in development of new therapeutic procedures. (J. D. French, Brain Physiology and Modern Medicine: Postgrad Med, 27: 559-568, May 1960)

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Regulation of the Heart's Function

The significance of cardiovascular regulation extends beyond considerations of normal function and control. Primary derangements of various cardiovascular control mechanisms represent an important and perplexing group of disease entities confronting the physician in his daily practice. For example: abnormal control of heart rate is involved in the extravagant tachycardia that occurs with neurocirculatory asthenia and other manifestations of psychologic instability; both primary and secondary systemic arterial hypertension involves abnormalities in blood pressure control; orthostatic hypotension represents a failure of the normal peripheral vascular response to arising. A more

specific defect in fine control of peripheral vasculature occurs in Raynaud's disease. Still other situations are the regulatory mechanisms that influence erythropoiesis and which may produce anemia at one extreme and polycythemia at the other. The control of blood volume and of total body fluids must be deranged when patients with advanced cardiac disease develop peripheral vascular congestion and edema.

In addition to primary disturbances of control mechanisms, physicians must be alert to changes in control systems induced by various organic disease states—aortic insufficiency, myocardial infarction, hyperthyroidism, or emotional states. Because the heart is a pump, its control must take the form of adjustments in the heart rate or stroke volume or both. If the cardiac output is regulated by a sensing element that provides an error signal whenever the cardiac output varies from some set value, the flow-sensing mechanism is not presently identified. The resting heart rate is the resultant of mutually antagonistic effects of sympathetic and parasympathetic nerves to the pacemaker region. The parasympathetic effects are generally regarded as dominant, therefore, section of both sets of nerves leads to a faster heart rate than the normal resting value. The cardiac index at rest tends to be about the same for subjects with either rapid or slow heart rates. If this is the case, the cardiac output may be regarded as "set" in terms of some other criteria—peripheral tissue requirements.

Flow of blood through peripheral tissues might be regulated to maintain a constant environment for the various cells. Such regulation might involve chemoreceptors in the systemic veins to monitor oxygen content of venous blood and, in turn, provide sensing elements for proper adjustment of peripheral flow distribution and cardiac output. Such adjustments would be truly applicable only to those tissues in which blood flow is dependent upon metabolic rate and oxygen consumption—skeletal muscle. Since skin serves an essential function in heat exchange, proper sensing elements to "set" blood flow through subcutaneous tissues would be some form of temperature receptors. What would be the most appropriate sensory elements to monitor renal blood flow, gastrointestinal perfusion, or circulation through glands?

The traditional view of cardiac output regulation revolves about a mechanism for maintaining systemic arterial pressure to provide an effective balance between peripheral blood flow and cardiac output. If the perfusion pressure is maintained constant by means of servo-control, any net change in peripheral flow is promptly countered by appropriate increase in cardiac output. Distortion receptors in the carotid sinus and aortic arch could serve as appropriate sensory elements to monitor systemic arterial pressure.

According to traditional concepts, a mechanism for adapting stroke volume to circulatory requirements was embodied in the length-tension relationships of the myocardium—no external control need be postulated. Similarly, increased stroke volume and stroke work accompany increased diastolic distention in intact animals during the transition from the standing

to the recumbent position. However, other forms of cardiovascular adjustments appear to be initiated primarily by increased discharge of sympathetic nerves to the heart and peripheral vasculature.

Initiation of changes in circulatory pattern by increased discharge from the higher levels of the nervous system does not necessarily constitute a regulatory mechanism, because no sensing mechanisms, setting mechanisms, or feed-back loops have been implicated. Adjustments in the cardiovascular system initiated voluntarily or from higher levels of the nervous system might more appropriately be regarded as control rather than regulation.

If a regulating system consists of a mechanism for sensing the essential parameters, detecting deviations from a "set" value, and initiating corrective action, then the arterial pressure-regulating mechanism is the only regulating system described for the circulation in any detail. Thus, it appears that the circulatory system as a whole is largely controlled by neural mechanisms, usually initiated by higher levels of the nervous system. Very little is known of the sensory limbs of reflex arcs that can serve to regulate the cardiovascular system as a whole. (R. F. Rushmer, Regulation of the Heart's Functions: Circulation, XXI: 744-748, May 1960)

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Cardiovasculature Effects of Nicotine

During March of this year, a symposium on the Cardiovascular Effects of Nicotine and of Smoking was held by the New York Academy of Sciences. Many features were presented and discussed.

Nicotine is found not only in the tobacco plant, but it also occurs widely in the plant kingdom; it arises from the precursors nicotinic acid and ornithine. It appears to be a terminal product with no appreciable physiologic activity for the plant.

Nicotine is absorbed not only by those who smoke, but also by those who take snuff or chew tobacco. Reports of the amount of nicotine absorbed when smoking one cigarette vary from 0.3 to 1.8 mg.

The metabolism of nicotine is not yet fully known—much further work is needed. It seems possible that the metabolism of nicotine changes with advancing years, some processes declining in rate or ceasing altogether.

On the cardiovascular system, nicotine has long been believed to owe its action to stimulation of the autonomic ganglia. Recently, attention has been directed to various peripheral effects of nicotine at sites where ganglia are not present. Thus, nicotine has a twofold effect in the isolated heart. It causes, first, inhibition of contractions, and, second, acceleration and augmentation. Inhibition is excluded in the presence of atropine, but the acceleration is unaffected. In the heart there is a store of noradrenaline

which can be extracted from the muscle. It is now evident that the acceleration of the heart caused by nicotine is due to release of some of the noradrenaline from the store. Treatment with reserpine causes a disappearance of the store at the end of a few hours. The rise in heart rate which follows smoking is thus probably explained by an action of nicotine on the heart itself releasing noradrenaline from storage sites in the heart.

In 1940, it was shown that when a person smoked a cigarette in a warm room there was a considerable fall in skin temperature. This fall was believed to result from a constriction of the skin vessels caused by a stream of impulses passing down the vasoconstrictor nerves. However, recent work indicates that this effect, also, is due to local release of noradrenaline—from the neighborhood of the small vessels.

The exact site of storage of noradrenaline is unknown. There is a possibility that it is held in tissue known as chromaffin tissue. Such cells have long been known to occur among the fibers of the sympathetic system, and side-by-side with the sympathetic ganglion cells. Evidence is beginning to accumulate to show that distribution of chromaffin cells is considerably extensive. One investigator described a "paraganglion cardiacum" lying around the origins of the coronary arteries; others have described such cells in human skin. In all situations, nicotine exerts an action on normal tissue. Therefore, it may be that nicotine exerts its peripheral effects by discharging noradrenaline from chromaffin cells. (J. H. Burn, Cardiovascular Effects of Nicotine and of Smoking: Nature, 186, 525-526, May 14, 1960)

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Carbonic Anhydrase in Peptic Ulcers

Physicians who treat duodenal ulcers are faced with one of the most complex problems in medicine. To induce profound, prolonged metabolic acidosis in patients with this disease, in an attempt to decrease their hyperacidity, the authors administered Acetazoleamide in relatively high doses (1 Gm daily) for a period of 2 to 8 weeks, with beneficial results.

Recent concepts relating to gastric secretion suggest that there are several phases pertaining to this physiologic chain of events. Four have been well delineated—cephalic, cholinergic, gastric, and intestinal phases. The authors' work deals primarily with the cholinergic phase in which direct vagal stimulation accounts for gastric secretion; but one must bear in mind that there are many other local, enzymatic, hormonal, and nervous elements involved which may alter the clinical response to any of these factors.

First consideration to control hyperacidity was an attempt to produce a sustained blocking of carbonic anhydrase. This blocking produces a marked decrease in available H ions needed for production of HCl by the parietal cells. Second consideration to control hyperacidity was an attempt to produce a sustained metabolic acidosis by lowering CO_2 combining power. This could be

accomplished by a prompt and adequate renal and enzymatic response to Diamox, causing a marked loss of sodium, potassium, CO_2, and to a lesser extent, calcium ions.

Employing Diamox and a convalescent ulcer diet, 125 patients suffering from symptomatic peptic ulcer showed favorable response based on subjective, x-ray, laboratory, and clinical studies. Inhibition of carbonic anhydrase by Diamox produced a sustained, prolonged metabolic acidosis in almost all patients which could be maintained as long as the patient was taking the medication. The dose was well tolerated—only 30 patients experienced mild tingling in their extremities.

These results demonstrate that a suitable carbonic anhydrase inhibitor can suppress formation of HCl in the human stomach. It can also induce a sustained metabolic acidosis without ill effects on patients. These pronounced metabolic events are readily induced and reversible in a matter of hours. The therapeutic regimen employed should not necessarily be limited to patients who are subject to hypersecretion and hyperacidity; patients with typical ulcer symptoms and without any hyperacidity have responded equally well. It is a well known fact that hyperacidity is not the sole cause in ulcer pathogenesis, and that heartburn is not necessarily due to hyperacidity. Patients with duodenitis, prolapsed gastric mucosa, and penetrating ulcer (with marked edema surrounding the penetrating area) also respond to treatment with Diamox.

Diamox was found to be of prompt value in relieving symptoms in one patient who was subject to the "milk-alkali syndrome." It is the authors' impression that patients taking antacids and an excessive amount of milk should supplement that regimen with at least 250 mg Diamox daily to induce a mild or moderate degree of metabolic acidosis. (MAJ R. J. Gailitis MC USA, W. Schreiber, Carbonic Anhydrase Inhibition in the Management of Symptomatic Peptic Ulcers: Amer J Dig Dis, 5: 473-478, May 1960)

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Rational Use of Vitamins

In a published study, the Council on Foods and Nutrition of the American Medical Association states, "Vitamin preparations are used extensively and are valuable when used properly. For the most intelligent use and beneficial results in preventive or therapeutic medicine, the values and limitations of vitamins should be realized. It is important that a clear differentiation be made between vitamins as dietary supplements and vitamins as therapeutic agents." The author endeavors to set forth a rational basis for use of vitamins in the practice of medicine.

The Food and Nutrition Board of the National Research Council has published a table of recommended dietary allowances designed to maintain good nutrition in healthy persons in the United States. (Recommended Dietary

Allowances, Publication 589, 1958, National Academy of Sciences, Washington, D. C.) The allowances are not to be considered adequate either to meet additional requirements associated with disease or for nutrient repletion in severely depleted persons.

In any section of the country, considerably more than one-half of the population can be expected to fail to meet in full the recommended dietary allowances for one or more nutrients. This does not mean that all such persons are malnourished or vitamin deficient. Many people can be well nourished on diets that do not meet the allowances in one or more respects.

In order to safeguard the nutritional welfare of a substantial minority it is essential that a dietary standard be applied which will provide a liberal margin of safety for the majority. In order to protect the nutritional status of the individual patient, the prudent physician will assume—until he can prove otherwise—that his patient belongs to that sizable minority having greater-than-average nutritional requirements.

Severe, acute vitamin deficiency diseases caused by poor diets alone are no longer common in this country. However, severe deficiency states secondary to, or precipitated by, other metabolic disorders, diseases, alcoholism, and iatrogenic causes are relatively common. In these areas, diagnostic acumen, skills, and patience are put to the test. Unfortunately, in these conditions, results of nutritional therapy frequently are difficult to evaluate; nevertheless, when diagnostic workup fails to reveal other sufficient cause for the symptomatology, the patient should receive the benefit of adequate nutritional therapy before he is labeled a psychoneurotic or hypochondriac. Possible causes of vitamin deficiency include socioeconomic causes and other situations of diminished nutrient intake; increased nutrient requirement; interference with absorption, utilization, or storage; and increased loss or excretion.

The dietary vitamin inadequacies most frequently reported on diet surveys in the United States are those of vitamin A, vitamin C, thiamine, and riboflavin. These vitamins are supplied by foods which frequently are not eaten in sufficient quantity—deep green leafy and yellow vegetables for carotene (provitamin A); tomatoes and citrus fruits for vitamin C; pork, enriched flour, bread, and fortified cereals for thiamine; and milk for riboflavin. If certain speculations are proved, vitamin B_6 deficiency may be the most common vitamin deficiency in this country. Evidence is accumulating that relative vitamin B_6 inadequacy may occur frequently in certain conditions of stress. Vitamins A, D, E, and B_{12}, once absorbed, are well stored within the body. Thus, a daily supply from external sources is not essential, and deficiencies are rarely critical. Nevertheless, it is recommended that the daily requirements for these vitamins be met if it is at all feasible.

Normally, the major source of biotin and vitamin K appears to be the flora of the intestinal tract. Thus, the possibility of deficiency of these vitamins in children and adults must be borne in mind when, for some reason, the intestinal flora is abnormal or depleted.

In the presence of adequate amounts of other B vitamins, niacin can be synthesized within the body from tryptophan. In a healthy person on a liberal intake of high-quality protein, it is doubtful that the dietary content or preformed niacin needs to be considered.

The fat-soluble vitamins are A, D, E, and K. Vitamin K which is essential for the synthesis of prothrombin is not as well stored within the body as are the other fat-soluble vitamins. Therefore, vitamin K deficiency may occur under circumstances of prolonged antibiotic therapy (caused by suppression of vitamin K-producing bacteria), severe diarrhea, or in obstructive jaundice when bile is excluded from the intestine (because bile is needed for fat absorption).

With two exceptions—biotin and B_{12}—the water-soluble vitamins (B vitamins and vitamin C) are much more dependent for physiologically adequate tissue content on recent and current dietary intake and are considerably less well stored within the body.

Supplemental Vitamin Therapy. The principle involved is the same as that behind enrichment and fortification of foodstuffs with vitamins. Enriched foods may contribute considerably to the diet of many individuals. However, others for various reasons do not partake of the enriched foods in sufficient quantity to meet daily needs. To protect such people against development of vitamin deficiencies, it is necessary to resort to use of supplemental vitamin therapy in addition to diet instruction and nutrition education.

Supportive Vitamin Therapy. Disease and injury may increase vitamin requirements; interfere with their ingestion, absorption, or utilization; or increase their elimination. The majority of therapeutic diets outlined in hospital manuals do not supply the nutrients necessary to maintain good nutrition during the acute phase of an illness, and insufficient attention is given to the extra requirements for the convalescent and rehabilitative phases of medical care.

Supportive vitamin therapy falls into three general categories:

Preparation—Prior to elective surgery or other predictable stress situations, it is advisable to bring the patient into as good a state of nutrition as possible. When indicated, it is advisable to administer multiple-vitamin preparations preoperatively. Vitamin K should be given if the prothrombin time is found to be prolonged.

Because the duration of pre-stress preparation generally is short, it is recommended that therapeutically effective amounts of the vitamins be given during this period. The exact quantities and type of preparation used will be determined by the patient's nutritional status.

Maintenance—Well-nourished individuals manifest a negative nitrogen balance following injury or the onset of illness. Loss of body nitrogen is accompanied by some loss of certain water-soluble vitamins, particularly riboflavin. More striking, however, is the effect of such physical stress in diverting the B vitamins, vitamin C, and vitamin A from the plasma and urine

to the tissues or to storage depots. Much more important from the practical standpoint is increase in nutrient requirements caused by increase in metabolism that follows injury and onset of illness.

In the catabolic stages of acute illnesses and following injury, it may be extremely difficult—if not impossible—to bring the patient into positive nitrogen balance and to maintain the blood vitamin values at pre-stress levels. It has been demonstrated, however, that the deleterious effects of the catabolic stage can be minimized by a diet adequate in calories and rich in high quality protein and vitamins. It is generally conceded that such a regimen shortens the period of convalescence.

Rehabilitation—The process of convalescence involves supplying protein, calories, vitamins, and other nutrients in liberal amounts. The more rapid and complete the nutritional rehabilitation, the shorter the period of convalescence.

If the disease or injury was mild and the patient previously had been well nourished, supplemental amounts of the vitamins generally will suffice; if severe or of long duration, therapeutic amounts of the vitamins are indicated until convalescence is well established and the patient has attained good nutritional status. Then, a supplemental vitamin preparation should be continued for a protracted period.

Specific Vitamin Therapy. Treatment of vitamin deficiency diseases requires accurate diagnosis, intensive therapy with specific vitamins, deficiency of which has produced the disease, adequate supportive therapy, and eradication or minimization of conditioning and precipitating factors.

It is recommended that therapeutic polyvitamin preparations be used, plus additional quantities (5 to 10 times the recommended daily dietary allowance) of the vitamin specific for the predominating deficiency. Orally administered therapy generally is the method of choice whenever feasible. Vitamin B_{12} and K deficiencies are exceptions to this rule, although satisfactory management by proper orally administered therapy is possible in most cases. (R. S. Goodhart, Rational Use of Vitamins in the Practice of Medicine: Postgrad Med, 27: 663-670, May 1960)

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Medicine has never been more scientific in its training, more catholic in its scope, or more open in its judgment than at the present time. Honest heterodoxy has no difficulty in obtaining a hearing, nor, if it can prove a case, in securing adoption. Rather are we too easily wooed, too susceptible to the blandishments of the new. The last few years have seen many examples of this mistaken eagerness. Heterodox methods, honest enough and sponsored by men of repute have been adopted and widely practiced, only to be found worthless after an extended trial. —Ogilvie

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Mitral Commissurotomy in Pregnancy

Pregnancy in patients with mitral stenosis always presents many puzzling problems to the cardiologist and obstetrician: Will there be any serious risk for the mother during the course of pregnancy? In which conditions is therapeutic abortion indicated? Are there some clinical data on the basis of which it is possible to foresee the behavior of the circulatory system during the following months? Finally, what are the indications and contraindications for mitral commissurotomy?

Cardiac surgery, greatly developed in the last years, has definitely given the opportunity for a new approach and, often, a solution of these problems. In the Division of Cardiac Surgery of the University Hospital, University of Turin Medical School, the authors have had the opportunity of studying a fairly large number of patients. Reviewing accumulated data, they discuss from a surgical, hemodynamic, and therapeutic point of view indications for mitral commissurotomy in pregnancy and report results obtained in 37 patients.

Hemodynamics of Mitral Stenosis in Pregnancy

Pathophysiologic dynamics of the circulation in the pregnant woman with mitral stenosis result from the hemodynamic effects of the valvular disease with those induced by pregnancy itself:

a. Oxygen consumption is increased.

b. Arterial saturation of oxygen is not significantly varied.

c. Arteriovenous difference of oxygen is always increased.

d. Utilization coefficient of oxygen is increased, owing to the synergic effect of pregnancy factors (increased coefficient at the uterus level), and mitral defect (reduced cardiac output at the level of the tissues), and higher oxygen utilization, especially during the second part of pregnancy.

e. Cardiac output and cardiac index are reduced.

f. Work of the right ventricle is increased in relation to degree of stenosis; the work of the left ventricle is generally reduced.

g. Pulmonary resistances are increased in relation to the mitral defect; peripheral resistances unchanged or slightly increased.

Clinical Observations

Embolic episodes before operation were extremely frequent in the authors' series of patients, the incidence of 27% being higher than that usually found. There appeared to be no definite relationship to pregnancy because all episodes had occurred before pregnancy.

Of the 37 patients, 26 had had one or more pregnancies in the past followed by a normal delivery. However, onset of the last pregnancy was

accompanied by a more marked aggravation of clinical symptoms: increasing palpitation, dyspnea, and frequency and severity of attacks of pulmonary edema or hemoptysis.

Causes responsible for aggravation of the clinical symptoms of mitral stenosis during pregnancy are several and complex. The increased load on the heart imposed by the changed metabolic conditions, oxygen consumption, and cardiac output plays the most important role. However, another important factor is increased water retention, due to hormonal influences which further aggravate the phenomena of stasis and congestion. In most of the authors' cases, there was a very tight mitral orifice; the load imposed by gestation resulted in severe signs of insufficiency.

In 14 cases there was a systolic murmur, but no valvular defects could be demonstrated by hemodynamic or clinical data nor by observations at operation. These murmurs were probably due to decreased circulation time and do not differ pathogenetically from those in many other physiopathologic conditions such as hyperthyroidism or anemia. Correct recognition of the functional (or inorganic) nature of these murmurs is necessary to obtain an exact diagnosis.

The majority of the patients (32 of 37) were in sinus rhythm; the percentage in atrial fibrillation (about 12%) was definitely much lower than is observed in the general population who have mitral stenosis and undergo surgical treatment. The reason for this discrepancy was probably due to the comparatively younger age group which did not show myocardial damage.

In all 32 subjects with pure mitral stenosis, x-ray examination had shown some degree of left ventricular enlargement. This phenomenon was probably related to circulatory changes taking place during gestation.

Although some reports have described operation as late as the eighth and ninth month of pregnancy, the authors judge the best period for surgery to be the fourth month, or as early as possible. In no case was there a complication of postoperative recurrence of rheumatic fever—theoretically, endocrine changes occurring during pregnancy act favorably in preventing acute rheumatic manifestations. After careful follow-up and evaluation, the authors consider that pregnancy, by itself, does not increase in any way the risks, difficulties, or complications of mitral commissurotomy.

Indications for Mitral Commissurotomy During Pregnancy

On the basis of their data, the authors propose some criteria to help the cardiologist and obstetrician in relation to this problem.

1. Knowledge of the cardiac status during previous pregnancies provides considerable prognostic help for the present gestation. Uneventful previous pregnancies may orient the physician toward medical rather than surgical treatment.

2. Progressive deterioration of cardiac conditions before and/or during gestation is a definite indication for prompt surgical treatment.

3. Sudden occurrence of an attack of pulmonary edema is usually a symptom of the downhill tendency of hemodynamic conditions and is a clear-cut indication.

4. Combined valvular lesions demand careful consideration of each individual case. If an aortic stenosis is associated with mitral stenosis, a combined mitral and aortic valvulotomy can be performed successfully; if severe aortic or mitral insufficiency is associated, chances of successful medical treatment are slight.

5. It is good policy to perform surgery even in the mild case. The aim of cardiac surgery must be not only to cure established symptoms, but to prevent occurrence of future manifestations which can appear in the last half of pregnancy, particularly during delivery.

6. Commissurotomy must be advised and performed without irrational doubts or fears in every case of pure mitral stenosis, the best time being the first months of gestation.

7. Mitral stenosis is not an indication for therapeutic abortion.

(A. M. Dogliotti, Mitral Commissurotomy in Pregnancy - A Study of 37 Surgical Cases: J Thor Cardiov Surg, 39: 663-671, May 1960)

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Uterine Cytology

Eight years ago, only a few thousand women were receiving an annual uterine cytology examination. Now it is estimated that each year more than 3 million women receive cervical cancer examinations using the cytologic method.

The goal of a program under the auspices of the National Institutes of Health and conducted at ten centers throughout the country is cytologic examination and evaluation of no fewer than 700,000 women tested once, 210,000 tested a second time, and 70,000 tested three times. It would be preferable, of course, to reexamine a larger percentage, but experience to date indicates that 30% is the best yield that can be expected on return examinations. At present, more than 600,000 women have been examined at least once.

Although the women studied represent a number of widely separated population groups, certain uniform procedures and standards make it possible to view the entire group as a single research experience.

Smears considered totally negative for cancer amounted to 95. 2%; atypical—those negative for cancer, but indicative of some sort of epithelial cell abnormality—amounted to 3%. Suspicious smears were those showing some cells which might indicate presence of cancer (0. 7%), and positive smears were considered to be conclusive evidence for cancer (0. 2%).

By using raw unpublished data, it has been possible to compute gross rates for various kinds of cancer found in the first examination of the entire

group. As rate per 1000, intraepithelial carcinoma of the cervix occurs in 2.45; invasive carcinoma of the cervix, 1.5; cancer of corpus, 0.21; and cancer of other sites of female reproductive tract, 0.09.

Consideration of the number of intraepithelial cancers of the cervix compared with the number of invasive cancers of the cervix may shed some light on the relationship of intraepithelial carcinoma to invasive carcinoma. Certain fundamental questions concerning this relationship may be considered:

Do all invasive cervical cancers begin as intraepithelial lesions?

What proportion of intraepithelial lesions progress to invasive lesions?

What is the time required for an intraepithelial lesion to progress to invasiveness?

Do some intraepithelial lesions regress and disappear spontaneously?

Is it possible for an intraepithelial lesion to remain noninvasive indefinitely?

What are the age-specific incidence and prevalence rates of carcinoma-in-situ and invasive carcinoma?

Uterine cancers diagnosed microscopically following the first cytologic examination show considerable variation between studies in the proportion of intraepithelial and invasive cervical carcinomas found at first examination. Further analysis may reveal that this variation is due to different epidemiologic factors in the separate study groups.

Study at the Memphis center produced a casefinding rate 40 times that observed in the community prior to establishment of the project. Among 108,136 women examined the first time, 60.4% (463 of 766 cases) of invasive uterine and intraepithelial cervical carcinoma found, were unsuspected. Of the 393 cases of intraepithelial carcinoma, 90% were unsuspected; 30% (112 of 373) of cases of invasive carcinoma were unsuspected. In addition, 20 cases of extrauterine genital cancer were found.

At the Columbus, Ohio center, of 99 patients found to have cancer of the genitalia—intraepithelial and invasive cancer of the cervix, and cancers of the corpus uteri, vagina, and ovary—69% had cancers that were previously unsuspected.

The Madison, Wisconsin investigators reported that 74% of the confirmed cases of intraepithelial cancer of the cervix were not clinically detectable. The opposite relationship was evident for invasive cancer; that is, 73% were clinically suspected.

The Cancer Institute's vigorous cytology research program is aimed not only at gathering much needed information on the natural history of uterine cervical cancer, but also at investigating other promising applications of the cytologic technique. The Institute scientists have become aware of the importance of determining whether cancer cells circulate in the peripheral blood of individuals some time before metastasis or generalized spread occurs. Such a finding might be highly valuable in cancer diagnosis or in predicting whether an individual cancer would be likely to spread. Examination of peripheral blood may be justified for establishment of a primary diagnosis of cancer in

suspected cases that have eluded diagnosis by other means. The technique also may be of value in following patients after operation to indicate the presence of unsuspected metastases and in determining if manipulation of a tumor at the time of operation actually causes a "spraying" of malignant cells into the blood stream.

Cytology is also being applied toward the detection of cancers of various specific sites other than the cervix, particularly the lung, genitourinary system, and gastrointestinal tract.

Considerable work is being done on the cytoanalyzer, an electronic device designed to speed examination of specimens obtained in the cytologic test for uterine cervical cancer. This instrument has been found capable of accurately selecting a significant percentage of specimens that need not be examined further by cytotechnicians or pathologists. It seems likely that the cytoanalyzer can be modified for use in examination of cytologic specimens obtained from other parts of the body. (R. F. Kaiser, et al, Uterine Cytology: Public Health Rep, 75: 423-427, May 1960)

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Primary Tumors of the Retroperitoneum

A variety of tumors have their origin primarily in the retroperitoneal tissues, in addition to those which are manifestations of generalized disease or involvements of the viscera lying in this area. Some few, such as the cysts and an occasional benign solid tumor, are curable by surgical excision. Others may be nonresectable or may recur after resection; nevertheless, the survival of the patient may be prolonged substantially by palliative surgery or irradiation. Only a few are devastatingly malignant neoplasms for which nothing can be done.

These patients present themselves with the common problem of an obscure mass in the abdomen. The precise nature of their tumors can rarely be determined except by an exploratory laparotomy and usually an accompanying biopsy. The prognosis is variable even among tumors with the same microscopic appearance.

The author presents observations from study of 17 cases.

Diagnosis. There is nothing distinctive about the symptomatology of these patients. The abdominal mass may be found by palpation or by roentgenologic examination and may or may not produce discomfort. Clinical laboratory tests yield no positive information. Both time and expense are saved if, as soon as a mass is shown to lie behind the peritoneum and to be neither visceral nor vascular, the obligatory exploratory laparotomy is undertaken without further delay.

Intravenous urography yields the most reliable information and should be the first radiologic examination requested if a retroperitoneal tumor is

suspected. Gastrointestinal studies give less definite, although often helpful, information.

Retroperitoneal Cysts. The occasional discovery of a simple cyst is ample warrant for using laparotomy for any obscure abdominal mass. Despite their embryologic origin, they may make their appearance at any age. Because mesenteric cysts are actually retroperitoneal, it is logical to include them in this category.

Tumors of Mesenchymal or Neural Origin. These tumors are predominantly sarcomatous and are usually malignant when they first manifest themselves. It is doubtful that even extensive surgical resection will thwart their tendency to local recurrence and, ultimately, to metastasis and death. This course of events may require several years during which these tumors constitute a threat from mechanical compression of the intestines or ureters rather than by their inherent malignancy. They are late in metastasizing and only in their terminal stage do they invade adjacent viscera. There are unpredictable exceptions to the general belief that these tumors will not respond to irradiation therapy.

Tumors of Lymphatic Origin. The lymphomata usually appear as generalized neoplasms. Rarely one originates in, and for a time remains confined to, the retroperitoneal lymph nodes. Even though not resectable, these cases offer a limited target for concentrated irradiation therapy. Response of these tumors to irradiation is unpredictable and is not correlated with tumor cell type. Sometimes, remission is obtained—10-year survivals have been reported.

Tumor of Indeterminate Nature. In any classification of tumors, it seems inevitable to have a miscellaneous or indeterminate group. The history of one such case is presented. Survival of this patient for more than 9 years—originally considered to be hopeless—emphasizes the unpredictable behavior which is the outstanding characteristic of retroperitoneal tumors. (J. P. North, Primary Tumors of the Retroperitoneum: Ann Surg, 151: 693-704, May 1960)

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BUMED INSTRUCTION 7303.4C 24 May 1960

Subj: Funds under the appropriation Operation and Maintenance, Navy, subhead 1820, for ships and certain other operating forces

This directive provides instructions to fleet operating units, certain deployed Fleet Marine Force units, and active ships excluding hospital ships, relative to utilization of allocations incurred under BuMed allotment 12001.

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Sixty-Second Anniversary of the Founding of the Hospital Corps

An open letter from Rear Admiral Bartholomew W. Hogan, Surgeon General of the U. S. Navy, to all Hospital Corpsmen upon the occasion of the Sixty-Second Anniversary of the founding of the Hospital Corps is quoted:

"On the occasion of the sixty-second anniversary of the establishment of the Hospital Corps, I desire to extend once again my congratulations and best wishes to the enlisted men and women of the Hospital Corps.

The saga of the Hospital Corps spans over six history-making decades, periods of world shaking events and an era of tremendous scientific and technical development. It is a narrative replete with accomplishment, sacrifice, and dedication to the service of the sick and injured.

The epic of the Hospital Corps in war has been told many times. The legendary bravery of hospital corpsmen has been clearly recorded in the annals of history. The personal sacrifices and long hours of hard work, the natural expression of which is dedicated service to others, serve as a tribute to every hospital corpsman in times of peace.

The challenges precipitated by the advent of nuclear weapons, supersonic jet-propelled aircraft and sophisticated guided missile systems have placed added strain upon the resourcefulness and versatility of the Hospital Corps. With the application of thermonuclear energy to instruments of war and with the attendant capabilities for mass destruction, drastic changes in planning and training have been generated. I portend that the Hospital Corps as a member of the medico-military team will meet the new challenges and responsibilities introduced by these new developments.

On this anniversary, I am pleased to report that the advancement in rating opportunity for all hospital corpsmen has been markedly increased; the greatest increase being reflected in our senior petty officer pay grades, which have for so many years endured limited promotion opportunity. You may be assured that the efforts which have been directed towards increasing promotion opportunity will continue unabated.

As Surgeon General of the Navy, I extend my best wishes for continued success to each and every member of the Hospital Corps."

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DEEP FREEZE '61
1960 1961

General Medical officers and Flight Surgeons are needed for Operation DEEP FREEZE 61 which supports the U.S. Antarctic Research Program, a continuation of the International Geophysical Year in the Antarctic.

To date, only 24 U.S. Navy Medical officers have wintered over in Antarctica. This is an opportunity for adventuresome volunteers under 45 years of age to get into a new and growing field of military medicine and combine an exciting and unique tour of duty with a wealth of experience and the pleasure of being with an elite group of men.

Selectees will report to the U.S. Naval Construction Battalion Center, Davisville, East Greenwich, R.I., in early summer of 1960 for several months training in cold weather medicine, military law, communications, supply, construction, et cetera. Extra training in medicine or surgery specialties are afforded as desired. General Medical Officers are prospective Commanding Officers of Pole, Byrd, or Hallett Stations. These are the only billets in the Navy which afford a Medical Officer a line-type command. The Flight Surgeon is assigned to the Naval Air Facility, McMurdo, and gains a wealth of knowledge about UC-1 Ski Otters, P2V-7 Ski, HUS, R4D-8 Ski, R7V, C-124, and the new Navy C-130B Ski aircraft.

Following the special training and orientation period in Rhode Island, the selectees will be embarked for a short tour of duty in New Zealand before continuing to the ultimate duty assignment in Antarctica. Return to CONUS is expected by Christmas 1961.

All possible consideration will be given to preference for duty assignment upon completion of a tour of duty in Antarctica. Regulars, Reserves, and graduating interns will be considered. Further information may be obtained by writing the Staff Medical Officer, U.S. Naval Support Force, Antarctica, Bldg. "D", Sixth and Independence Ave., S.W., Washington 25, D.C. Volunteers may notify Bureau of Medicine and Surgery by message (ProfDiv, BuMed).

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The qualified (physician) can embrace the whole of medicine in his work, choose one of its larger subdivisions, or confine his outlook to one limited aspect. . . . He can satisfy his own aspirations and play a part useful to his fellow men far beyond the age which closes other careers. —Ogilvie

Chemical, Biological, and Radiological Weapons Orientation Course

Twenty-two classes in the Chemical, Biological and Radiological Weapons Orientation Course will be conducted at the U.S. Army Chemical Corps Proving Ground, Dugway Proving Ground, Dugway, Utah, by the Department of the Army, during the fall of 1960, and winter and spring of 1961. The duration of the course is 3-1/2 days.

Officers of Commander through Flag rank are eligible to attend. Civilians, in the grade of GS-13 or higher, must be in a key position where need-to-know is mandatory. Persons who have received complete CBR briefings during the past year should consider delaying their attendance. Security clearance of TOP SECRET is required.

The course provides a high level orientation on Chemical, Biological Warfare and Radiological Implications of Nuclear Warfare, and is designed to acquaint senior military and civilian personnel of the Armed Forces with United States doctrine, policy, techniques, and capabilities in CBR Warfare.

Officers desiring to attend this course should submit their request to the Bureau of Medicine and Surgery, via official channels, when appropriate, requests to be received in the Bureau by the indicated dates:

Month of Courses	Deadline for Request to Reach BuMed
September 1960	1 August 1960
October 1960	1 September 1960
November 1960	13 October 1960
December 1960	21 October 1960
March 1961	27 January 1961
April 1961	1 March 1961
May 1961	24 March 1961
June 1961	25 April 1961

Candidates approved for attendance at the course will be issued temporary additional duty travel and per diem orders from this Bureau's training funds.

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BUMED INSTRUCTION 6150.23 18 May 1960

Subj: DD Form 877, Request for Medical/Dental Records and other information

This directive provides instruction for use of the revised form to be employed when requesting medical/dental records from any of the three military services. The revised form will be used upon depletion of existing stocks.

American Board Certification in Obstetrics and Gynecology

Applications for certification in the American Board of Obstetrics and Gynecology, new and reopened, Part I, and requests for reexamination in Part II are now being accepted. All candidates are urged to make such application at the earliest possible date; deadline for receipt of applications is 1 August 1960.

The following change in requirements for certification was made by the members of the American Board of Obstetrics and Gynecology at the recent annual meeting in Chicago.

"A Resolution was passed at the recent annual meeting of this Board which eliminates the submission of Case Reports as part of the Part I Examination. It is required, however, that each candidate eligible to take the Part II Examination bring to the place of examination a duplicate list of Hospital Admissions as submitted with his or her application. This change in requirements is not retroactive and, therefore, applies to candidates making application for the 1961 examinations."

It has also been resolved by members of the Board that Applications for Appraisal of Incomplete Training will no longer be accepted for review by the Residency Review Committee.

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ACP Fellowships and Associateships

Proposals for Fellowship and Associateship in the American College of Physicians must be received by the Governors of the College 90 days in advance of the scheduled meetings of the Committee on Credentials and forwarded to the College headquarters in Philadelphia, Pa., 60 days prior to the meetings in accordance with the following schedule:

Committee Meeting	Deadline for Receipt of Proposals	
	ACP Governors	Executive Office
November 1960	10 August 1960	10 September 1960
March 1961	17 December 1960	17 January 1961

Proposers shall submit applications in compliance with BuMed Instruction 1500.4B, to the Surgeon General, Bureau of Medicine and Surgery, Washington 25, D. C., who is Governor of the College for the Navy.

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From the Note Book

Station Hospital Accredited by JCAH. The announcement has been released recently that the Station Hospital, U. S. Naval Submarine Base, New London, Conn. has received accreditation from the Joint Commission on Accreditation of Hospitals. Accreditation of this medical activity—CAPT Deane S. Marcy, Senior Medical Officer—makes it the first Naval Station Hospital so honored.

Communication Facility Donates Blood. In conjunction with medical personnel of Centre, Nationale de Sanguine, Red Crescent—directed by the Moroccan Government, and a counterpart of the American Red Cross—the Medical Department of the U. S. Naval Communication Facility, Navy 214, under the direction of LT Frank S. Bryan MC USN, recently assisted in collection of 190 pints of blood from donors aboard the station at Sidi Yahia, Morocco. The blood bank that had been badly depleted by the recent Agadir disaster in southern Morocco was considerably bolstered by this contribution. This friendly action on the part of personnel of that station represents a characteristic portion of the active People-to-People program currently in operation in that part of North Africa.

APTA Meeting. LCDR Ruth Moeller MSC USN, U. S. Naval Medical School, Bethesda, Md., and LT(jg) Ann C. Hatten MSC USN, U. S. Naval Hospital, Great Lakes, Ill., represented the Bureau of Medicine and Surgery at the recent annual meeting of the American Physical Therapy Association held in Pittsburgh, Pa. Physical therapists at their respective activities, these officers also monitored an educational exhibit at the meeting.

New Lantern Slide Set for Loan. A new lantern slide set, "Cyclic Changes in Endometrium," has been completed and is now available on loan from the Illustration Library, Medical Illustration Service, Armed Forces Institute of Pathology, Washington 25, D. C. (AFIP Letter, 1 June 1960)

Myocardial Infarct and High-Milk Diet. The authors made a study of the incidence of myocardial infarcts among three groups: (1) patients with peptic ulcers who had been treated with a Sippy Diet or milk products; (2) similar patients not so treated; (3) matched non-ulcer patients. Group (1) patients in both Great Britain and U. S. A. showed incidence of myocardial infarction more than twice that of non-Sippy treated patients or controls. The butterfat content of the diet may be the important factor. (R. Griggs, et al, Circulation, April 1960)

Ulcerogenic Tumors of Pancreas. Patients exhibiting a severe peptic ulcer diathesis or intractable watery diarrhea, with a high output of acid gastric juice, should be suspected of harboring a non-beta islet cell tumor of the

pancreas. Primary jejunal ulceration and failure of otherwise adequate gastric operations to control the acid gastric factor are seen with such frequency as to be practically pathognomonic. Total gastrectomy, rather than total pancreatectomy, remains the treatment of choice, along with resection of the tumor and its metastases when possible. (R. Zollinger, T. Craig, Amer J Surg, April 1960)

Cerebral Lesions and Peptic Ulceration. Analyzing a large series of autopsy reports, the author found that 32% of 208 patients with acute peptic ulceration had cerebral vascular lesions; 18.6% of 177 patients with chronic ulcers had cerebral vascular lesions. The findings supported a conclusion that cerebral vascular lesions are the most common single cause of acute peptic ulceration as encountered at necropsy. The author suggests that cerebral vascular lesions should be considered frequent and clinically important causes of neurogenic peptic ulceration. (J. Dalgaard, AMA Arch Path, April 1960)

Hypersensitivity, Autoimmunity, and the Digestive Tract. Aware that immunologic phenomena are being implicated in an increasing number of unexplained diseases—including disorders of the gastrointestinal system—the authors examined the immunologic potentialities of the digestive tract; they review pertinent experimental and clinical evidence and indicate some of the problems requiring investigation. (J. Kirsner, Gastroenterology, April 1960)

Mechanism of Cerebral Contusions. In an extensive analysis of this problem, the authors conclude that the occurrence and location of cerebral contusions, and their absence in other regions of the brain, is dependent not only upon the magnitude and direction of impact and the structural features and physical reactions of the skull, but also upon the state of the head while receiving the impact. Each of these factors is variable and their combination differs from one case to another. (R. Lindenberg, E. Freytag, AMA Arch Path, April 1960)

Griseofulvin and Dermatomycoses. The A. M. A. Archives of Dermatology for May 1960 is devoted entirely to various aspects of use of griseofulvin. Some 40 papers, originally presented at a symposium conducted by the Department of Dermatology of the University of Miami School of Medicine, represent the experiences of investigators from eleven countries.

Treatment of Salicylism. Ingestion of toxic quantities of salicylate results in alterations of acid-base homeostasis which at times may be profound. There is no specific antidote for salicylism; treatment is aimed at augmenting elimination of salicylate which is more efficient at an alkaline pH. The rapid fall of serum salicylate levels suggests that careful use of sodium bicarbonate is the preferred treatment of salicylism in children under 4 years of age. (T. Oliver, M. Dyer, AMA J Dis Child, May 1960)

DENTAL SECTION

New Concept in Treatment of Tori

A survey of the literature reveals no concept similar to the author's for treatment of torus palatinus or torus mandibularis. Tori receive the major portion of their nutrients from the overlying periosteum. This fact is borne out by Simmons' observation that "they are composed of a layer of compact bone with intervening cancellous bone superimposed on the cortical bone of the structures to which they are attached."

The author has observed that when tori are accidentally injured and denuded they separate from their attachment and are exfoliated. In line with this observation, a number of both palatal and mandibular tori of varying dimensions have been treated by an encircling incision at the base and stripping of the overlying mucoperiosteal covering. Following this procedure, the exostoses separated from their attachment and exfoliated in approximately 21 days without pain or excessive bleeding. A smooth area remained which soon was epithelialized and over which dentures could be constructed.

The exfoliated torus shows that these growths are formed of a thin outer layer of cortical bone enclosing a highly cancellous matrix.

It is concluded that this conservative treatment is to be preferred over the more radical procedure of removal of the growth with chisels and burs and attendant complications. (E. G. Friedrich, JADA, 60: 482, April 1960)

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Responsibility

(Excerpts from an address by ADM Arleigh Burke, Chief of Naval Operations, before the First Class Midshipmen, U. S. Naval Academy, 30 April 1960)

Recently, I was asked in a letter what I considered my most important professional decision. That is a tough question and, frankly, I was unable to single out any specific answer.

At the time the decisions were made, each seemed the most important, at least to me. But, in thinking back, in reviewing them, a thought kept repeating itself, again and again. It was the most important part that responsibility plays in every decision that you make, major or minor, large or small.

There are a lot of channel markers to help you make decisions, but one of the best is a well developed sense of responsibility. It is one of the most important things in your lives.

Basically, responsibility means being accountable to someone, for something. It involves an obligation. In battle plans and operations orders, for example, we refer to an area of responsibility. Here we mean that commanders are responsible for certain tasks and will be held accountable for their execution. It may be to attack something, to perform some special job, or just to stand ready to act when called upon. With every duty comes responsibility, to the authorities above you, and just as important, to your subordinates. Responsibility is the very heart of all authority.

Your responsibilities will grow with you as our nation grows. They are part of maturity. Some, those already existing, will be broadened and new ones will be assumed.

Responsibilities give purpose and meaning to life. Many people devote all their lives to chasing frantically after happiness. It is a tragic thing to see because they never find it.

Real happiness comes to those who do their jobs and do their best. You see this in the Fleet. The taut ships, the ones that win the E's and the competitive exercises, the ones you want with you in battle, are the happy ships.

The people who really put out, have the secret to happiness, to growth. When you put out, when you take on the tough jobs, when you turn the worst division into the best, when you bring your department from UNSAT to OUTSTANDING, you bring yourself up with it. You grow mentally and you build self-confidence.

Responsible men must be able to stick to their guns, to persevere. You are bound to run into difficulties and you will make mistakes. You will have to stick your neck out, good leaders always do. You will run into criticism.

There will always be some who will resent your accepting responsibility. But do not let that bother you. Life is no popularity contest. You will find your real rewards in the satisfaction of a job well done, in increased responsibilities, and in greater opportunities. As life becomes more challenging, the mastery of it becomes more rewarding.

This all sounds like a big order—it is. The opportunities are equally big. Measure up to your responsibilities and you will perform a great service for our Navy, our country, and for all mankind.

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Let us emancipate the student, and give him time and opportunity for the cultivation of his mind, so that in his pupilage he shall not be a puppet in the hands of others, but rather a self-relying and reflecting being.

—Osler

ACD Answers on Ethics

A report published in the April 1960 issue of the American College of Dentists (ACD) Reporter contained the following questions and answers on the subject of "conduct" in relation to the ethics of dentists. Even though these are specific guides for Fellows in the ACD, the guidelines set forth should be observed by all dentists.

Q. Why does the College disapprove of Fellows supplying their photographs to proprietary publications?
A. Because it is inconsistent with the dignity of the College to have its members use this means of publicity in such publications. Photographs should be used only in conjunction with scientific programs for program publicity purposes and not for personal aggrandizement.

Q. Are there any circumstances or conditions under which Fellows should be permitted to contribute to non-proprietary publications?
A. None that cannot be met through regular professional publications.

Q. What is the policy of the College toward individuals contributing to manufacturers' house organs?
A. House organs are proprietary publications.

Q. What is the policy of the College toward individuals cooperating with dental manufacturers in the development of new products?
A. The profession should be willing to cooperate in any effort that points to better service for the public. Toward that end cooperation with dental manufacturers should not be denied, provided, it does not lead to commercial interest in the product concerned.

Q. Is the person so cooperating, entitled to any remuneration for his services?
A. If the time involved is nominal, remuneration should not be expected; if it is extensive, reasonable remuneration should be provided. However, the dentist's name should not become associated with the product, nor should he become a beneficiary in any way.

Q. May a Fellow read a paper or give clinics at meetings, parties, or seminars sponsored by dental manufacturers or supply houses?
A. If the purpose is to give information and/or guidance to manufacturers in the production of material for better service to the public, cooperation should be extended. If, on the other hand, the motive is sales, the answer is "No." This would include any educational effort. Education in methods or techniques is not the province of manufacturers or sales agencies.

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Dental Technician Training Courses

Applications are desired for courses of instruction in Dental Technician Prosthetic, Basic, Class "C"; Dental Technician General, Advanced, Class "B"; and Dental Technician Prosthetic, Advanced, Class "B". Applicants must be eligible and submit requests in accordance with BuMed Inst. 1510.2B. Eligible technicians will be considered for selection to a class convening approximate to their rotational phase in accordance with current SHORVEY/SEAVEY procedures. Technicians requesting Dental Technician Prosthetic, Basic, Class "C" may be ordered prior to the rotational phase of the SHORVEY to fill the required number of training billets.

The purpose of the course of instruction in Dental Technician Prosthetic, Advanced, Class "B" school is to develop further the technician's skill in all prosthetic laboratory techniques and is patterned to the needs of the individual technician in that particular attention is given to increasing his ability in those areas in which he may be deficient.

The purpose of the course of instruction in Dental Technician General, Advanced, Class "B" school is to enable the technician, through increased knowledge and improved skills, to render maximum assistance to the Dental Corps, Medical Service Corps, and Dental Service Warrant officers in the administration, clinical management, and operation of the dental facilities in the Navy. Subjects included in the course cover all phases of the above areas, including instruction in basic principles. They also elaborate inservice and on-the-job training programs.

The course of instruction in each of the Dental Technician Advanced "B" schools is designed to provide advanced technical knowledge and skill required to prepare personnel for the higher petty officer rates.

Dental officers are requested to give this information the widest possible dissemination.

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Personnel and Professional Notes

New Reserve Dental Company. Naval Reserve Dental Company 8-3, composed of Ensigns (1925), was established 11 April 1960 at the College of Dentistry, University of Texas, Houston. LT B.S. Blankenship DC USNR is Acting Commanding Officer, and will continue to be associated with the 6th Infantry Battalion, U.S. Marine Corps Reserve, and be Representative of the Commandant to the College.

CAPT Urban Receives M.A. CAPT K.L. Urban, Executive Officer, U.S. Naval Dental Clinic, Naval Weapons Plant, Washington, D.C., received the Master of Arts degree in Education at the June commencement exercises of American University.

Instructor's Manuals. The Dental Division, Bureau of Medicine and Surgery, recently completed distribution of Change I to Instructor's Manual for Inservice Training for Advancement to Dental Technician 2, 1, and C (NavMed P-5061). Holders of the manual who have failed to receive necessary changes may obtain them by letter of request to Chief, Bureau of Medicine and Surgery (Code 611).

Portsmouth, Virginia Dental Society. The Dental staff, U.S. Naval Hospital, Portsmouth, Va., was host to the Portsmouth, Virginia Dental Society on 31 May 1960. The professional meeting at which CAPT G.H. Bonnettee, Chief of the Dental Service presided was held in the new hospital building. Table clinics were: Acrylic Implants in Reconstructive Surgery, CAPT W.I. Williams (USNR); Classification and Treatment of Traumatic Injuries, LCDR H.J. Dennis; and Parenteral Therapy, LT R.W. Koch.

RADM Ryan at Dubuque, Iowa. RADM D.W. Ryan, District Dental Officer, 9th Naval District, represented the Department of Defense at the Armed Forces Day celebration at Dubuque, Iowa. While in Dubuque and in connection with the celebration, ADM Ryan addressed the Chamber of Commerce, spoke to 1700 students at Wahlert High School, and with Mayor Takos reviewed a parade consisting of various Armed Forces units.

RADM Schantz Honored. RADM C.W. Schantz, Assistant Chief of the Bureau of Medicine and Surgery and Chief, Dental Division, was awarded the honorary degree of Doctor of Science at the 76th annual commencement exercises of his alma mater, Marquette University, Milwaukee, Wis.

Wisconsin State Dental Society. Dental officers from the U.S. Naval Training Center, Great Lakes, Ill., participating in the recent Annual Meeting of the Wisconsin State Dental Society, held in Milwaukee, were: CAPT R.H. Loving—Minor Tooth Movement to Enhance Periodontal Therapy; CAPT R.B. Wolcott and CDR M.A. Mazzarella—Dental Research at Great Lakes; CAPT R.B. Wolcott, LT R.C. Campbell, LT T.J. McFadden (USNR), LT A.G. McDonnell (USNR), and LT D.E. Taggart (USNR)—The Class V Gold Foil.

CAPT Luallen Certified. CAPT L.J. Luallen DC USN, U.S. Naval Hospital, Newport, R,I., graduate of the Chicago College of Dental Surgery (1941), was certified recently by the American Board of Oral Surgery.

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There is nothing more difficult to take in hand, more perilous to conduct, or more uncertain in its success than to take the lead in the introduction of a new order of things. —Machiavelli

RESERVE SECTION

Promotion Plan for Inactive Duty Naval Reserve Officers

(Continued from the last issue of the News Letter dated 17 June 1960)

Promotion points earned in present grade by the following methods are creditable for establishing professional fitness for promotion to the next higher grade:

a. Completion of Correspondence Courses and/or Naval Reserve Officer Schools

(1) Promotion points earned by satisfactory completion of approved Navy correspondence courses and NROS courses commenced prior to 1 July 1955 are creditable.

(2) Promotion points earned by satisfactory completion of correspondence courses or NROS courses commenced on or after 1 July 1955 are creditable only if selected from the courses approved for rank and designator code shown in the tables of correspondence courses.

b. Participation in Inactive Duty Training

(1) Twelve promotion points were earned for each year of satisfactory Federal service completed in grade between 1 July 1949 and 1 July 1955; provided that in earning the fifty (50) retirement points required to qualify for a year of satisfactory Federal service, at least twelve (12) retirement points were earned by other than completion of correspondence courses or gratuitous points.

(2) Subsequent to 1 July 1955, twelve (12) promotion points are awarded for the first of the following completed in any fiscal year:

(a) Assignment to a drilling unit, and attending at least seventy-five (75) percent of the number of drills prescribed in the tables of organization, but in no case less than eighteen (18) scheduled drills effective 1 July 1957, (Twelve (12) scheduled drills during fiscal years 1956 and 1957); OR

(b) Satisfactory completion of at least fourteen (14) periods of appropriate duty; OR

(c) Satisfactory completion of at least fourteen (14) days active duty, including active duty for training.

(d) NO MORE THAN TWELVE PROMOTION POINTS MAY BE EARNED IN ONE FISCAL YEAR UNDER THE PROVISIONS OF THIS SUB-PARAGRAPH.

c. Extended active duty: One (1) promotion point was earned for each month (16) days or more of extended active duty, excluding training duty, completed between 1 July 1950 and 1 July 1955. Subsequent to 30 June 1955, two (2) promotion points are earned for each month.

d. Completion of approved Resident Courses of Instruction: Resident courses of instruction completed on active duty are evaluated automatically by the Bureau of Naval Personnel, and promotion points so earned are credited by the Reserve Officer Recording Activity. Only resident courses of instruction which exempt officers on active duty from promotion exams are so evaluated. In general, Fleet courses, and short courses offered at Naval Training Centers do not provide promotion point credit.

e. Certain college courses and residency training: Courses completed in present grade since 1 July 1950 in an accredited college or university, or medical and dental officers enrolled in a course of residency training approved by the Chief of the Bureau of Medicine and Surgery will upon the officer's application be credited with one promotion point for each semester hour or equivalent thereof satisfactorily completed. Not more than twelve promotion points will be credited during one fiscal year.

(1) Requests for promotion credit for college or university courses will be made by the individual officer to the Officer-in-Charge, Reserve Officer Recording Activity, forwarded via the command holding the officer's service record. The request must be accompanied by a transcript of credits from the college or university.

(2) Requests for promotion credit by doctors or dentists who have completed residency training will be made by the individual officer to the Officer-in-Charge, Reserve Officer Recording Activity, forwarded via the Chief, Bureau of Medicine and Surgery. The request must be accompanied by a certification from the institution in which training was taken as to the type of residency training and the inclusive periods in which enrolled.

An officer on inactive duty who fails to earn the prescribed number of promotion points prior to the end of the second fiscal year following the fiscal year in which such officer was recommended for promotion shall not be considered professionally qualified for promotion after that date. The name of such an officer will be presented to the next ensuing selection board which is constituted as an examining board for reexamination of his professional qualifications. If not again found to be professionally qualified for promotion, the officer shall be held for all purposes to have twice failed of selection for promotion. If found to be professionally qualified for promotion by the examining board, subject to the earning of prescribed number of promotion points, the officer shall be given an additional two years to complete his professional qualifications (i. e., the end of the fourth fiscal year following that in which selected).

(To be concluded in the next issue)

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PREVENTIVE MEDICINE

Course in Disease Vector Control

A 4-week basic course in disease vector and economic pest control is now available to personnel of West Coast and Pacific Area activities at the U.S. Navy Disease Vector Control Center, U.S. Naval Air Station, Alameda, Calif. The course is designed to provide training for all active duty military personnel as well as military civilian personnel engaged in pest control surveillance, supervision, or operations.

Courses scheduled for the remainder of calendar year 1960 will convene on the following dates: 11 July through 5 August; 6 September through 30 September; 24 October through 18 November.

Naval activities are urged to have personnel attend the course to become qualified in disease vector and economic pest prevention and control. Attendance quotas are allocated by the Officer in Charge of the Center. Requests for scheduling attendance should be addressed directly to the Officer-in-Charge, U.S. Navy Disease Vector Control Center, U.S. Naval Air Station, Alameda, Calif.

Funds for travel and per diem will be provided by the activity or command to which the trainee is attached for permanent duty.

Billeting and messing facilities are available at the Naval Air Station, Alameda, for military and civilian personnel attending the course.

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Control of Staphylococcal Food Poisoning

Staphylococcal food poisoning is overwhelmingly the most prevalent foodborne infection in the United States; factors responsible for its outbreaks have not been clearly defined.

It is difficult—if not impossible—to determine those conditions which are required to render food poisonous because no satisfactory laboratory test has been found to detect the presence of staphylococcus enterotoxin in food. At present, the only means of clarifying these factors appears to be through analysis of unselected outbreaks of this disease.

Analysis of Ninety-Five Outbreaks 1955 - 1956

Diagnosis of staphylococcal food poisoning is generally based on circumstantial evidence, not on demonstrated presence of enterotoxin in food. In this series, the diagnosis was based on opinions of health officers originally reporting the outbreaks and on finding staphylococci in food. Since staphylococci are ubiquitous and many strains are not enterotoxigenic, mere presence of staphylococci in food is not sound evidence for diagnosis of this disease. In this survey, diagnosis of staphylococcal food poisoning was supported by two types of supplementary evidence: the type of staphylococcus found in the incriminated food and the incubation periods of the outbreaks.

In 75 outbreaks reporting such information, the organisms considered to be staphylococci were classified as follows:

Classification	Number of Outbreaks	Percentage of Outbreaks
Coagulase positive	53	71%
Coagulase negative	5	-
Staphylococcus aureus	45	60%
Staphylococcus albus	1	-
Hemolytic	28	37%

Phage typing and bacterial counts were each reported in three instances, and kitten test for presence of enterotoxin was reported once—both too infrequent to be of significance. These data indicate, but do not prove, that the organisms generally found were enterotoxigenic.

Incubation periods were recorded in 77 outbreaks:

Incubation Period	Number of Outbreaks	Percentage of Outbreaks
1 - 4 hours	61	79.2%
5 - 8 hours	11	14.3%
More than 8 hours	5	6.5%

These figures agree with those accepted for this disease, and outbreaks surveyed were classified as staphylococcal food poisoning with reasonable accuracy.

Factors Responsible

Dack showed that staphylococcal food poisoning may result after ingestion of certain foods which had been contaminated by enterotoxigenic

staphylococci and had remained at proper temperatures long enough to produce dangerous amounts of enterotoxin. Overt infections of food handlers and uncleanliness have been commonly assumed to be the sources of contamination of food, although no general survey has been reported to determine the over all significance of such infections or unclean practices. Types of food capable of acting as vehicles of this disease and methods of handling food permitting formation of dangerous amounts of enterotoxin have not been clearly defined.

Types of Food Acting as Vehicles. In 94 of 95 outbreaks, the vehicle of this disease was reported as cooked food which contained large proportions of protein. In 63 outbreaks (67%) the vehicles were food mixtures, such as tuna salad, turkey salad, creamed chicken, potato salad, meat loaf, chicken pie, egg salad, and cream-filled pastries. Such mixtures are usually handled extensively after cooking.

Raw and freshly cooked meats were not reported in this series and cannot be found recorded in the literature as the vehicle of staphylococcal food poisoning, regardless of state of preservation of meat prior to cooking. The fact that many people throughout the world consume putrid meat with impunity indicates that raw foods probably are incapable of acting as vehicles of this disease. No experiments have been reported to substantiate or deny this thesis.

Vegetables, unmixed with high-protein foods, were not reported as the vehicle in any outbreak in this series. Careful differentiation should be made between vegetables mixed with high-protein foods, such as potato salad containing eggs or mashed potatoes prepared with milk and eggs, and vegetables unmixed with any high-protein items.

Food Handlers' Infections and Uncleanliness. Specific questionnaires were sent to all health officers originally reporting outbreaks to determine whether (a) food handlers were examined in connection with the outbreaks, (b) any infection of food handlers was found, (c) utensils and premises were inspected, and (d) any unclean practices were discovered.

Visible infections of food handlers were reported in only nine outbreaks; they were listed as "some lesions on hands of one food handler," "burn from bleach," "infection of eyelid," "blister on hand," "cuts on hand," "two bakers had chronic paronychiae," "skin lesions," "healing lesion on hand," and "one cook had eczema." Thus, infections of food handlers, including questionable ones, were not commonly reported in association with outbreaks of staphylococcal food poisoning.

Insanitary practices were reported in only 13 outbreaks. In four, the practices were described as "unclean" without giving details. Other descriptions were "roaches, flies, and unclean premises and equipment," "dirty refrigerator," "debris on slicing machine," "not adequately sanitized," "sanitation poor in pastry shop," "utensils dirty, garbage storage poor," "custard gun eroded," "careless," and "terrible."

Abnormal environmental conditions including both infections of food handlers and uncleanliness were reported in a total of 21 outbreaks—one

outbreak reported both uncleanliness and infection of food handler. In 50 outbreaks, examination of food handlers and inspection of premises revealed neither infections nor uncleanliness. Of 71 outbreaks reporting complete information, in 70% no obvious environmental conditions which could act as a source of contamination of food by staphylococci were observed.

Methods of Handling Food. The manner of handling vehicles of these outbreaks was investigated through the following questions sent to health officers: Was the vehicle of food poisoning inadequately refrigerated after cooking, and if so, under what conditions and how long? Was the vehicle inadequately heated after cooking? If so, under what conditions and how long? Was the food left over or cooked the day before it was consumed?

Leftover food was reported as the vehicle of 81 outbreaks. In only five outbreaks was the vehicle food cooked on the day of consumption. Thus, leftover food was the reported vehicle of this disease in 94% of 86 outbreaks reporting this information.

Unrefrigerated food was reported as the vehicle in 74 of 83 outbreaks supplying information on manner of handling food after cooking. The length of time food was kept unrefrigerated was of great importance in defining the rate of enterotoxin production resulting in food poisoning:

Time Period	Number of Outbreaks
Less than 4 hours	6
4 - 8 hours	8
More than 8 hours	35
Unknown	25

From this tabulation, it appears that food can be rendered poisonous within 4 hours. Careful scrutiny of the six outbreaks in which food was reported unrefrigerated for less than 4 hours shows that two of them involved cream-filled pastries. Adequate chilling of the custard filling was evidently delayed long after being placed in the refrigerator because of insulation of the pastry capsule. Two other outbreaks involved food that had been alternately warmed and inadequately chilled. The two remaining instances both involved potato salad which may have been unchilled for less than 4 hours. The author witnessed one outbreak in which potato salad containing eggs was prepared after 8:00 a. m. and consumed at 11:30 a. m. ; six cases of staphylococcal food poisoning resulted. These cases indicate that unrefrigerated cooked protein food may become poisonous within 4 hours, but that a period of 8 hours or longer is more common. Temperatures were recorded predominantly as "room temperature."

In 13 outbreaks, cooked protein food was reported inadequately heated. The circumstances appear to have been nearly ideal for bacterial growth: in five instances, food was kept on a warm steamtable; and in one instance

each, in defective oven, in warming oven, under burnt-out infrared lamps, on warming table, and in oven with pilot light burning.

In four outbreaks, the food was constantly refrigerated after cooking. Two outbreaks involved Boston cream pie and chocolate eclairs in which encasing pastry acts as efficient insulation. It was found that 3 hours or more are required to lower the temperature of custard within eclairs from 80 to 50° F when refrigerated constantly at 38 to 42° F. Thus, custard-filled pastries which were reported to be constantly refrigerated are, in fact, not adequately chilled for a period of some hours. In the third outbreak, the vehicle had been refrigerated in a thick mass in large containers, while the fourth outbreak involved tuna salad prepared with leftover deviled eggs. It seems that the vehicle in each of these four outbreaks was not promptly, constantly, and adequately chilled.

The vehicle in 99% of the outbreaks was cooked food which contained large proportions of protein, strong evidence that other types of food, such as raw food, vegetables, and other low-protein foods are incapable of acting as vehicles of this disease. Since 70% of 71 outbreaks were free from obvious infections of food handlers and without unclean practices, it appears sound to conclude that such abnormal environmental conditions are not the prevailing factors determining development of this disease. On the other hand, in 83 outbreaks reported fully, the vehicle was high-protein food, unrefrigerated after cooking in 74 instances, kept warm after cooking in 13 instances, and the food was alternately warmed and left unrefrigerated in eight instances. Since in 79 out of 83 outbreaks, the vehicle was unrefrigerated or warmed after cooking, these numbers clearly show that the determining factor in development of staphylococcal food poisoning lies in permitting cooked protein food to remain warm or at room temperature for periods of 4 hours or longer.

Discussion. Outbreaks of staphylococcal food poisoning generally have been considered to be dependent on two major factors: (a) some abnormal source of contamination of food by enterotoxigenic staphylococci, such as infections of food handlers; and (b) keeping food under conditions that permit dangerous amounts of enterotoxin to form. In view of the relative infrequency of abnormal environmental conditions, it seems clear that food may be commonly contaminated by enterotoxigenic staphylococci under apparently normal sanitary conditions.

Actually, a large percentage of normal persons have been shown to be carriers of pathogenic staphylococci.

It seems logical to assume that virtually all food may become contaminated by these organisms, regardless of the state of cleanliness and presence or absence of infections in food handlers.

From these outbreaks, there is sound evidence that staphylococcal food poisoning occurs only when cooked protein food remains for some time at an approximate room temperature; none of the outbreaks involved consumption

of freshly cooked food. While these facts are not new, they indicate that this disease develops when protein food is neglected after cooking rather than because of a multitude of factors.

Prevention. All recommendations for control of this disease have one objective: to prevent the staphylococci present in cooked protein food from forming enterotoxin. Effective points of attack lie in keeping cooked protein food at such temperatures that staphylococci cannot form enterotoxin, and limiting the length of time cooked protein food is kept at dangerous temperatures. Since a much longer time is required to produce enterotoxin under laboratory conditions than is reportedly required to render food poisonous, in the absence of precise knowledge, these standards of temperatures and limits of time which may safeguard food have been chosen arbitrarily:

1. 40° F—maximum temperature for keeping cooked protein food cold. Enterotoxigenic staphylococci grow well at 50° F. Investigators have shown that the rate of enterotoxin production was progressively retarded with lowering the temperature below 98.6° F. Since modern refrigerators may be adjusted with ease to temperatures of 40° or lower, this level appears to be advisable.

2. 140° F—minimum temperature for keeping cooked protein food hot. This is the reported thermal death point of staphylococci.

3. Three hours is the maximum length of time cooked protein food should be kept between 40 and 140° F, including the time required for chilling. This means the total cumulative time that food remains in this temperature range. The length of each exposure to temperatures 40 to 140° F must be added to that of all previous exposures when leftover food is involved.

While these recommendations are simple in principle, they are difficult in practice. It is reported that the quickest chilling of one-gallon lots of potato salad requires 3 hours after being placed on beds of ice. It is recommended that the most rapid way of chilling food is to place it in shallow, flat, stainless steel pans in a freezing compartment rather than in the refrigerator. For instance, it was found that the internal temperature of one-half-gallon lots of potato salad was lowered from 65 to 41° F within 35 minutes after being placed in the freezer at 14° F, while it required 80 minutes to lower the temperature of control lots from 65 to 46° F after being placed in the refrigerator at 40 to 44° F.

In contrast to the difficulty of chilling food, rapid heating is relatively simple because of the large heat differential. Inadequate heating of food arises usually from gross negligence—placing food in warm ovens; keeping food on a steamtable for many hours after the heat has been turned off; lowering the temperature of the steamtable because workers find its heat objectionable; mixing hot and cold items without subsequent heating, such as mixing cold chicken with hot cream sauce; warming leftover food rather than heating it thoroughly; and judging temperature of food by temperature of the water bath. The rate of chilling or heating food cannot be predetermined by sizes or types

of containers or by mass of food, since the varied consistencies of food result in varied rates of heat conduction. Therefore, the only means of determining that food is adequately chilled is to insert a thermometer into the mass of food.

Certain problem foods should be handled with special precautions. If custard-filled puffs or eclairs are not to be consumed immediately after preparation, the author recommends rebaking them at 375° F for 30 minutes to sterilize the custard within the shell. Potato salad, egg salad, and similar items should not be used as leftovers because the 3-hour safe-time limit is usually consumed in preparing and serving. Foods containing bread or cracker crumbs, such as croquettes, meat loaf, and poultry dressing, pose a problem because the crumbs create air pockets and act as insulation against heating. Such foods should be prepared only for immediate consumption unless the temperature of the interior of the food has risen to more than 150° in cooking.

Sandwiches are common vehicles of staphylococcal food poisoning because they are frequently prepared well in advance of consumption and because chilling the filling of the sandwich is impeded by the encasing bread which acts as insulation. When sandwiches are not to be consumed immediately after preparation, chilling by placing them in layers of two in the freezer is recommended.

In this survey, the determining factor in the development of staphylococcal food poisoning was solely in keeping cooked protein food warm or at room temperature for 4 hours or longer. Of 83 fully reported outbreaks, the vehicles in 95% were cooked protein food which was subsequently kept unrefrigerated or warmed, or both.

The widespread presence of pathogenic staphylococci among healthy persons insures widespread contamination of food regardless of care in handling. Some well-known and commonly ignored precautions should be observed:

1. Don't cook food well in advance of intended consumption.
2. Don't forget leftovers, or assume that they are safe because they are in the refrigerator.
3. Don't assume that the refrigerator supplies adequate chilling without testing the temperature. Refrigerator temperatures frequently are above 60° F due to overloading, frequent opening of doors, or failure to adjust the cooling system so that the temperature remains constantly below 40° F.
4. Don't mix hot and cold cooked protein food without thorough heating afterward.
5. Don't assume that boiling questionable food makes it safe to eat, since boiling does not destroy staphylococcus enterotoxin.
6. Don't depend on odor, taste, or appearance of food to determine whether it is safe to eat since the staphylococcus enterotoxin is odorless, colorless, and tasteless.
7. Whether cooked protein food is safe to eat can be determined only by the total length of time it has been exposed to temperatures between 40 and 140° as stated above. (B. E. Hodge, Public Health Rep, 75:355-361, April 1960)

Clinical Evaluation of Four Oxyuricides

Enterobiasis (infection by the pinworm Enterobius vermiculáris) is still a common and troublesome pediatric problem, and increased incidence of parasitic diseases in the United States has been noted. Results of treatment of enterobiasis in children with four oxyuricides are reported in this article.

The percentage of cures in a group of 35 infected children treated with a combination of piperazine citrate (Antepar) and 55-44A (N,N'-bisdodecyl-N, N'-bis-methyl-2, 5-transdimethyl-piperazinium chloride) once daily for two consecutive days, was 51%. The cure rate of 17 infected children treated with a single dose of pyrivinium pamoate (Vanquin pamoate) was 100%.

Twenty-four infected children were treated with a combination of dioctyl sodium sulfosuccinate and piperazine citrate, given twice daily for 5 days, with a cure rate of 50%. The cure rate among 25 children treated with dithiazanine (Delvex or Abminthic) was 100%.

Some nausea, vomiting, and loose green stools were experienced by those treated with dithiazanine. On the first day of treatment with piperazine and dioctyl sodium sulfosuccinate combined in a tablet form, some children experienced nausea and anorexia. None of these reactions was of sufficient gravity to warrant discontinuance of treatment.

Pyrivinium pamoate was well accepted, and no untoward reactions were experienced by any of the children treated; the best cure rate with the shortest course of treatment was obtained with this drug. (T. S. Bumbalo, et al, Clinical Evaluation of Four Oxyuricides: AMA J Dis Child, 99: 617-621, May 1960)

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Chemoprophylaxis During Respiratory Infections

Many studies evaluating efficacy of antimicrobial agents in prevention of complications of respiratory diseases have been made and tend to show the lack of protection afforded by these agents except in specific illnesses or in the presence of chronic pulmonary weakness; i. e., cystic fibrosis of the pancreas and bronchiectasis. Such studies have not been carried out in private practice where a large percentage of medicine is practiced and through which a majority of the antimicrobial agents are prescribed. Studies on this problem based on hospital admissions have produced contradictory results.

This study was carried out in a private practice to evaluate the role of antimicrobial therapy in prevention of complications of respiratory illness.

The data presented in this paper tend to support the belief that prophylactic use of antimicrobial agents will not significantly reduce the incidence of complications attributable to the primary illness. The one possible exception is respiratory illness in a child with a history of recurrent respiratory illness.

Prophylaxis is successful and recommended in rheumatic subjects to prevent subsequent streptococcal infections. It is useful in military or similar "closed" populations facing an epidemic of meningococcic meningitis or exposure to gonococci or Shigella. It is helpful in averting bacterial complications which may compromise the life of an individual afflicted with congenital anomalies. It is recommended as an adjuvant to treatment of chronic lung disease. However, the success encountered in these several special fields of preventive medicine are not applicable to the general practice of medicine, but have served to lead physicians into the "promiscuous" use of antibiotics in the hope of preventing complications (presumably bacterial) of any illness.

A study was made of the use of antimicrobial agents to prevent secondary infections during respiratory illness by the random selection method in a private pediatric practice. The results indicate that there is no benefit to be gained from the routine use of these agents, even when a therapeutic dosage schedule is followed. (E. H. Townsend Jr., Chemoprophylaxis During Respiratory Infections in a Private Pediatric Practice: AMA J Dis Child, 99: 566-573, May 1960)

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